

NOTES ON GEOGRAPHIC DISTRIBUTION

Squamata, Gymnophthalmidae, *Psilophthalmus paeminosus*: Distribution extension, new state record

Fagner Ribeiro Delfim¹
Edelmo de Melo Gonçalves²
Selma Torquato da Silva³

¹ Departamento de Sistemática e Ecologia, Centro de Ciências Exatas e da Natureza, Universidade Federal da Paraíba, CEP 58051-900 – João Pessoa, PB, Brazil. E-mail: fdruida@yahoo.com.br

² Departamento de Zoologia, Centro de Ciências Biológicas, Universidade Federal de Alagoas, CEP 57072-970 – Maceió, AL, Brazil.

³ Setor de Zoologia, Museu de História Natural, Universidade Federal de Alagoas, CEP 57021-090 – Maceió, AL, Brazil.

Originally, the lizard fauna of the Caatinga was thought to consist of elements common to the broad swathe of savannah-like ecosystems that crosses South America from northeast to southwest (Vanzolini et al. 1980; Rodrigues 2003). However, researches by Rodrigues (1984a; b; 1986b; 1991a; b; c; 1992; 1993; 1996a) resulted in the descriptions of a number of new species and genera of lizards and snakes, which have contradicted considerably the traditional idea of low rates of endemism in this biome.

A large proportion of these new species belong to the family Gymnophthalmidae, a group of small lizards distributed between the Tehuantepec isthmus, in southern Mexico, and northern Argentina, as well as the Caribbean and some continental islands of Central and South America. They are found in open or forested habitats, where they are associated with the undergrowth, leaf litter and humus layer (Vanzolini et al. 1980; Rodrigues et al. 2001), as well as ant nests (Rodrigues 1996b). Of the sixteen species of gymnophthalmids known from the Brazilian Caatinga, only two are amply distributed in this biome, while six others are thought to have relict ranges. The eight other species are all found exclusively in the paleoquaternary dune fields of the middle São Francisco River, in the Brazilian state of Bahia (Rodrigues 2003; Borges-Nojosa and Cascon 2005).

Psilophthalmus paeminosus Rodrigues, 1991 (Figure 1), the only species of this genus, is among the species of the Gymnophthalmidae described from these dunes. The species is found only on the right bank of the middle São Francisco, where it has been recorded in the municipalities of Santo Inácio (type locality) and Vacaria (Rodrigues 1991c), in the state of Bahia. These localities, characterized by sandy soils, are relatively isolated and harbor other endemic species of lizards and snakes (Rodrigues 1991a; 1996).



Figure 1. *Psilophthalmus paeminosus* collected at Fazenda Cana Brava (09°34'39" S, 37°59'12" W), in the municipality of Canindé do São Francisco, state of Sergipe, Brazil.

During a long-term study of vertebrates in the Estação Ecológica de Xingó (limits 09°28' to 09°36' S, 37°47' to 38°03' W), we obtained specimens of *P. paeminosus* from two localities in the municipality of Canindé do São Francisco, on the right bank of the São Francisco, in the state of Sergipe (Figure 2). Specimens were deposited at the Coleção Herpetológica do Museu de História Natural da Universidade Federal de Alagoas, in Maceió (MUFAL 6271-6292).

The collecting localities were Fazenda Lamarão (09°33'06" S, 37°55'97" W) and Fazenda Cana Brava (09°34'39" S, 37°59'12" W), where three and 18 specimens were collected, respectively. Sandy soils predominate at both sites, alternating with shallow tracts of gravelly clay-like soils (red-yellow lithosoils). Specimens of *P. paeminosus* were collected exclusively in sandy soil habitats. On three occasions, the species was found in syntopy with a second psammophilous gymnophthalmid, *Vanzosaura rubricauda*.

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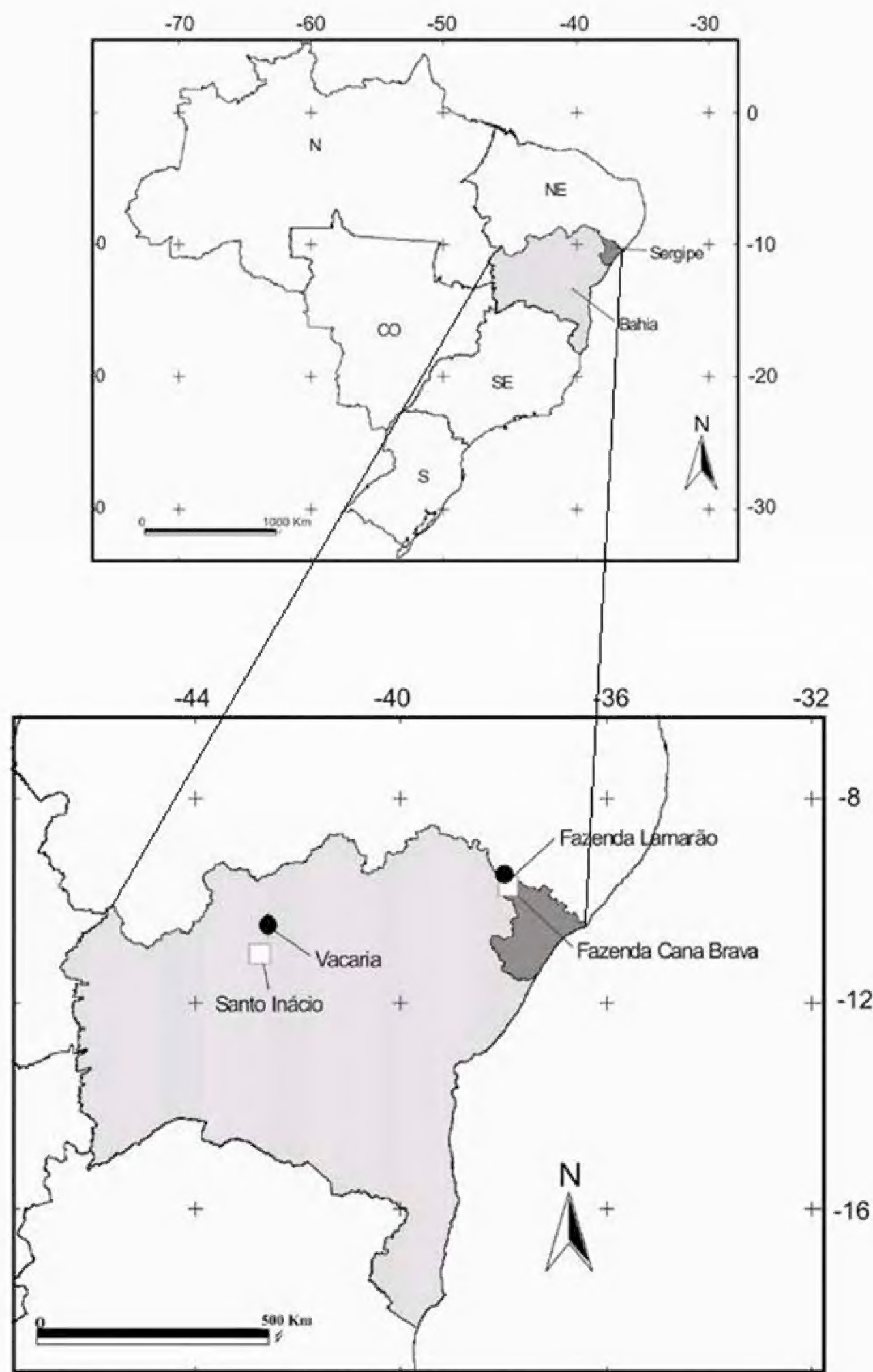


Figure 2. Known geographic distribution of *Psilophthalmus paeminosus*, including the new localities reported here.

Psilophthalmus paeminosus was invariably observed in locations with accumulations of humus, either alone, or in groups of up to four individuals. In 18 sightings, cacti, bromeliads or fallen trunks were present, providing full or partial

shade. Six specimens were found buried in sandy soil beneath the humus, at depths of between 5 and 30 cm. Rodrigues (1991b) recorded similar microhabitat use and flight behavior in this species in the São Francisco dune fields.

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A similar range extension was reported recently for the gymnophthalmid genus *Calyptommatus* – also originally thought to be endemic to the São Francisco dune fields (Rodrigues 1991a) – when Rodrigues *et al.* (2001) described a new species, *Calyptommatus confusionibus*, from the Parque Nacional Serra das Confusões, in the state of Piauí, approximately 120 km from the former site. Rodrigues *et al.* (2001) interpreted this distribution pattern on the basis of the recent geological history of the region (Pleistocene-Holocene), when prevailing southeast winds provoked constant variation in the size and distribution of the dune fields (Ab'Saber 1977; Rodrigues 1987; Oliveira *et al.* 1999). The most recent retraction of the dunes restricted them to their present distribution. During this most recent retraction, a series of sandy “islands” were left behind, forming refuges similar in function to the forest refuges of the Pleistocene (Vanzolini and Williams 1981).

This interpretation is supported by the distribution of other species associated with sandy soils (Rodrigues 1987; 1991a; 2003; Rodrigues *et al.* 2001). *Tropidurus cocorobensis* (Tropiduridae), for example, is found in four distinct areas of the Caatinga: Raso da Catarina and Morro do Chapéu, in Bahia, Buique, in the state of Pernambuco (Rodrigues 1987) and Xingó, in the state of Alagoas. All three sites are dominated by sandy soils, appropriate for species with psammophilous habits. In fact, the vast majority of Caatinga endemics – not only reptiles, but also amphibians and mammals – are psammophilous, i.e. restricted to habitats with sandy soils (Rodrigues 2003).

While it confirms that *P. paeminus* is not endemic to the dune fields of the middle São Francisco river, the range extension recorded here adds little to our knowledge of the zoogeographic history of this species, given that the two areas were linked by sandy habitats prior to the formation of the river channel (Oliveira *et al.* 1999, Rodrigues *et al.* 2001). It nevertheless emphasizes the need for research in poorly-known areas, such as the lower São Francisco and the sandy areas in the Cerrado/Caatinga contact zone, so that the geographic ranges of species assumed to be endemic to the Caatinga, or even relict populations, can be evaluated more definitively.

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